Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Original) A tunable optical element comprising:

a moveable path changing optical element adapted to receive light in a first optical beam on a first path and provide the light in a second optical beam on a second path, the second path being dependent on the position of the moveable path changing optical element; and

a position dependent optical element receiving the light in the second optical beam, the position dependent optical element changing a spectral characteristic of the light depending on the position of receipt of the light in the second optical beam by the position dependent optical element.

Claim 2. (Original) The tunable optical element of claim 1 wherein the moveable path changing optical element is a mirror.

Claim 3. (Original) The tunable optical element of claim 2 wherein the mirror is rotatable about an axis.

Claim 4. (Original) The tunable optical element of claim 3 wherein the mirror is a MEMS mirror.

Claim 5. (Original) The tunable optical element of claim 4 wherein the position dependent optical element is a Fabry-Perot filter formed of reflective front and rear surfaces, with the distance between the front and rear surfaces varying with location.

Claim 6. (Original) The tunable optical element of claim 5 wherein the Fabry-Perot filter is wedge shaped.

Claim 7. (Original) The tunable optical element of claim 5 wherein the Fabry-Perot filter is a wedge shaped etalon.

Claim 8. (Original) The tunable optical element of claim 5 wherein the Fabry-Perot filter is formed of a number of discrete steps of varying cavity length.

Claim 9. (Original) The tunable optical element of claim 5 further comprising a detector receiving light spectrally changed by the position dependent optical element.

Claim 10. (Original) The tunable optical element of claim 9 further comprising optics collimating the light in the second optical beam.

Claim 11. (Original) The tunable optical element of claim 10 further comprising a controller commanding adjustments in the position of the mirror.

Claim 12. (Original) The tunable optical element of claim 1 wherein the position dependent optical element is an interferometer having different resonant wavelengths along the length of the interferometer.

Claim 13. (Previously Presented) A tunable optical element comprising:

a moveable path changing optical element adapted to receive light in a first optical beam on a first path and provide the light in a second optical beam on a second path, the second path being dependent on the position of the moveable path changing optical element;

a position dependent optical element receiving the light in the second optical beam, the position dependent optical element changing a spectral characteristic of the light depending on the position of receipt of the light in the second optical beam by the position dependent optical element;

wherein the position dependent optical element is an interferometer having different resonant wavelengths along the length of the interferometer; and

a fiber providing light in the first optical beam and receiving light with a spectral characteristic changed by the interferometer.

Claim 14. (Original) The tunable optical element of claim 13 further comprising an optical circulator providing light to the fiber and receiving light from the fiber.

Claim 15. (Original) The tunable optical element of claim 1 wherein the position dependent optical element has different reflectivities for different polarizations, the reflectivity varying spatially across the position dependent optical element.

Claim 16. (Original) The tunable optical element of claim 15 further comprising a fiber providing light in the first optical beam and receiving light with a spectral characteristic changed by the interferometer.

Claim 17. (Original) The tunable optical element of claim 16 further comprising an optical circulator providing light to the fiber and receiving light from the fiber.

Claim 18. (Original) The tunable optical element of claim 1 wherein the position dependent optical element is an array of waveguides, with different waveguides having different spectral characteristics.

Claim 19. (Original) An optical device comprising:

a spatially varying optical unit, the spatially varying optical unit adapted to receive light provided on a plurality of paths, the spatially varying optical unit varying a spectral characteristic of received light depending on the path of the light; and

means for providing light to the spatially varying optical unit on any one of the plurality of paths.

Claim 20. (Original) The optical device of claim 19 wherein the spatially varying optical unit changes the phase of the light varying amounts based on the wavelengths present in the light.

Claim 21. (Original) The optical device of claim 20 wherein the spatially varying optical unit is an interferometer with a spatially varying cavity length.

Claim 22. (Original) The optical device of claim 20 wherein the spatially varying optical unit changes the dispersion of the light.

Claim 23. (Original) The optical device of claim 19 wherein the spatially varying optical unit filters the light based on wavelength.

Claim 24. (Original) The optical device of claim 23 wherein the spatially varying optical unit is a Fabry-Perot filter with a spatially varying cavity length.

Claim 25. (Original) The optical device of claim 23 wherein the spatially varying optical unit is a reflector, the reflectivity of the reflector spatially varying.

Claim 26. (Original) The optical device of claim 25 wherein the reflector has varying reflectivities for varying polarities spatially across the reflector.

Claim 27. (Original) The optical device of claim 19 wherein the spatially varying optical unit is an array of waveguides each having different characteristics.

Claim 28. (Original) The optical device of claim 27 wherein each of the waveguides has gratings, the gratings having different spacings for different waveguides.

Claim 29. (Previously Presented) An optical device comprising:

means for reflecting light on a first path to any one of a plurality of second paths; and

means for receiving light on at least two of the second paths and changing a spectral characteristic of the light depending on the path of the light and position of the light incident on the means for changing a spectral characteristic.

Claim 30. (Previously Presented) A method of changing a spectral characteristic of light comprising:

receiving light on a first path;

transferring the light on the first path to a selected path of any one of a plurality of second paths;

receiving the transferred light; and

changing a spectral characteristic of the light depending on the selected path and location of the received transferred light.

Claim 31. (Previously Presented) The device of claim 29 further comprising means for providing the light on the first path and receiving back the light with the changed spectral characteristic.

Claim 32. (Previously Presented) The method of claim 30 further comprising receiving back the light with the changed spectral characteristic.

Claim 33. (Currently Amended) An optical device comprising:

an optical circulator;

a movable mirror;

a first fiber providing light to the optical circulator;

a position dependent optical element;

a second fiber receiving light directed from the optical circulator and providing the light to the movable mirror, the movable mirror reflecting ~~reflected~~ the light from the second fiber to the position dependent optical element changing the spectral characteristic of the light from the movable mirror based on a path of the light from the movable mirror and position of the light incident on the position dependent optical element; and

wherein the position dependent optical element reflects back the light with the changed spectral characteristic to the movable mirror that reflects the light with the changed spectral characteristic back into the second fiber with the movable mirror remaining stationary after reflecting light to the position dependent optical element.

Claim 34. (Previously Presented) The device of claim 33 wherein the light reflected back into the second fiber has an amount of dispersion opposite to dispersion accumulated during transmission.

Claim 35. (Currently Amended) An optical device comprising:

an optical circulator;

a movable mirror;

a spatially varying optical element;

a first fiber providing light to the optical circulator;

a second fiber receiving light directed from the optical circulator and providing the light to the movable mirror, the movable mirror reflecting ~~reflected~~ the light from the second fiber to the spatially varying optical element changing the spectral characteristic of the light from the movable mirror based on a path of the light from the movable mirror and position of the light incident on ~~the position dependent optical element~~ the spatially varying optical element;

wherein the spatially varying optical element reflects back the light with the changed spectral characteristic to the movable mirror that reflects the light with the changed spectral characteristic back into the second fiber; and

wherein the spatially varying optical element has different reflectivities varying spatially across the optical element for different polarizations of light.

Claim 36. (Previously Presented) The device of claim 35 wherein the light reflected back into the second fiber has an

amount of dispersion opposite to dispersion accumulated during transmission.

Claim 37. (Previously Presented) The device of claim 35 wherein the spatially varying optical element has one side having a reflectivity for s-polarization being unity and zero for p-polarization light and has a reflectivity that changes across the optical element in that the reflectivity is unity for p-polarization and zero for s-polarization light at an opposing side of the optical element.

Claim 38. (Previously Presented) The device of claim 37 wherein the mirror is rotatable about two axes and the optical element is movable in two directions, one direction controls linear polarization and another direction controls circular polarization.

Claim 39. (Previously Presented) An optical device comprising:

a movable mirror;

a planar waveguide having a plurality of waveguides arranged in an array;

an optical fiber providing light to the movable mirror that reflects the light to at least one of the plurality of waveguides;

wherein the at least one of the plurality of waveguides changes the spectral characteristic of the light from the movable mirror based on a path of the light from the movable

mirror and position of the light incident on the at least one of plurality of waveguides; and

wherein each of the plurality of waveguides has an etched broadband gratings with spacing between the gratings varying for each of the plurality of waveguides in that each of the plurality of waveguides transmits light at a wavelength different from that of other plurality of waveguides.

Claim 40. (Previously Presented) The device of claim 39 further comprising a detector positioned behind the planar waveguide to monitor light for a particular wavelength depending on position of the mirror and wherein the movable mirror selectively directs light from the optical fiber to one of the plurality of waveguides to provide light to the detector having a particular wavelength.

Claim 41. (Previously Presented) The device of claim 39 further comprising:

an optical circulator;

a first fiber providing light to the optical circulator;

a second fiber receiving light directed from the optical circulator and providing the light to the movable mirror;

wherein the at least one of the plurality of waveguides reflects back the light with the changed spectral characteristic to the movable mirror that reflects the light with the changed spectral characteristic back into the second fiber.

Claim 42. (Previously Presented) The device of claim 41 wherein the light reflected back into the second fiber has an amount of dispersion opposite to dispersion accumulated during transmission.